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B1
1. (once amended) An isolated nucleic acid encoding a polypeptide comprising a subunit of a cation channel, the polypeptide:

(i) forming, with at least one cyclic nucleotide gated cation channel (CNG) alpha subunit, a cation channel having the characteristic of cyclic nucleotide-gating; and

(ii) comprising an amino acid sequence having at least 95% sequence identity to SEQ ID NO:1.

5. (once amended) The nucleic acid of claim 1, wherein the nucleic acid is amplified by primers that selectively hybridize under stringent hybridization conditions to the same sequence as the primers selected from the group consisting of:

GCGAAAGCTTCCACCATGAGCCAGGACACCAAAGTG (SEQ ID NO:12) and

CATGTCTAGAATGGGGATGGGGTCACTCTGGACCT (SEQ ID NO:13),

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wherein the nucleic acid is amplified under hybridization conditions comprising a denaturation phase comprising incubation at 95°C for 2 min., an annealing phase comprising incubation at 62°C for 2 min., and an extension phase comprising incubation at 72°C for 2 min.

6. (once amended) The nucleic acid of claim 1, wherein the nucleic acid selectively hybridizes under moderately stringent hybridization conditions to a nucleic acid comprising a nucleotide sequence of SEQ ID NO:2 or SEQ ID NO:3, wherein said moderately stringent hybridization conditions comprise incubation in 40% formamide, 1 M NaCl, and 1% SDS at 37°C with a wash in 1 x SSC at 45°C.

7. (once amended) An isolated nucleic acid encoding a cyclic nucleotide gated cation channel (CNG) 2B polypeptide, the nucleic acid specifically hybridizing under stringent conditions to a nucleic acid comprising a nucleotide sequence of SEQ ID NO:2 or SEQ ID NO:3, wherein said stringent conditions comprise incubation